

DIVISION 300

BASES

301 THROUGH 306 – BLANK

SECTION 307

CRUSHED AGGREGATE BASE COURSE

307.1-DESCRIPTION:

This work shall consist of furnishing, spreading, and compacting one or more courses of crushed aggregate on a prepared surface in accordance with these Specifications and in reasonably close conformity with the lines, grades, thicknesses, and typical cross sections shown on the Plans or established by the Engineer.

The work will be accepted in accordance with these Specifications and the applicable requirements of 105, 106, and 109.

307.2-MATERIALS:

The crushed aggregate base course shall be composed of materials meeting the requirements of 704.6 for the class shown on the Plans except that 704.6.3 shall not apply.

307.2.1-Quality Control Testing: Quality control of the crushed aggregate base course is the responsibility of the Contractor as specified in 106.1.

The Contractor shall maintain equipment and qualified personnel to perform all sampling and testing necessary to determine the magnitude of the various properties of the material governed by the Specifications and shall maintain these properties within the limits of the Specifications.

The Contractor shall design a quality control plan detailing the methods by which the quality control program will be conducted. This plan, prepared in accordance with the guidelines set forth in the appropriate portions of MP 307.00.50 and MP 717.04.21, shall be submitted to the Engineer at the preconstruction conference. The work shall not begin until the plan is reviewed for conformance with the contract documents.

307.2.2-Acceptance Testing: Acceptance sampling and testing of crushed aggregate base course is the responsibility of the Division, except for furnishing the necessary materials. Quality control sampling and testing performed by the Contractor may be used by the Division for acceptance.

307.2.3-Sampling and Testing: Frequency of sampling and testing shall be in accordance with the Contractor's quality control plan. The minimum frequencies shall be as indicated in applicable portions of MP 307.00.50. Crushed aggregate shall be sampled in accordance with MP 700.00.06, Aggregate Sampling Procedures.

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307.2.4-Acceptance Procedure: Material conforming to the specification requirements will be accepted at full contract price. Material failing to comply with the quality requirements of Table 704.6.2 shall not be incorporated into the work.

Acceptance of crushed aggregate base course for compaction and for gradation shall be in accordance with appropriate portions of 307.2.4.1.

307.2.4.1-Acceptance Plan: Acceptance for compaction shall be on a lot by lot basis. A lot shall consist of a single layer of not more than 2,000 linear ft. (600 meters) per width being placed. A lot shall be divided into five approximately equal sized sublots. One nuclear moisture and density measurement in accordance with applicable portions of 717 shall be made at a random location within each of the five sublots. The random locations shall be determined in accordance with MP 712.21.26. If the result of five density tests on a lot indicates that at least 80 percent of the material, in accordance with 106.3.1 (West Virginia AP-A), has been compacted to the specified target percentage of dry density, the lot will be accepted. If less than 80 percent has been compacted to the specified target percentage of dry density, no additional material shall be placed on that layer until it has been reworked to meet the specified requirements. Reworking and retesting shall be at the expense of the Contractor. When the Division performs the testing in the evaluation of reworked lots, the testing will be at the expense of the Contractor at the unit cost specified in 109.2.2.

Acceptance for gradation shall be on the basis of test results on consecutive random samples from a lot. A lot shall be considered the quantity of material represented by an average test value, not to exceed five sublots. Generally at the beginning of the project, the average shall be started on the second sample in accordance with MP 300.00.51. A subplot is the quantity of material represented by a single gradation test. In the case where only one sample is taken, this subplot shall be considered the lot. The material shall be sampled and tested in accordance with 307.2.3. The gradation test results shall be plotted on a control chart in accordance with MP 300.00.51. When the average, or when the most recent three consecutive individual test values fall outside the limits of Table 704.6.2, the lot of material represented will be considered nonconforming to the extent that the last of its sublots is nonconforming. When this occurs, the last subplot shall have its price adjusted in accordance with Table 307.9.1. In the case where the average is nonconforming and the last subplot contained is conforming, then there would be no price adjustment. In no event, however, shall a subplot of material have its price adjusted more than once, and the first adjustment which is determined shall apply.

307.2.4.2-Degree of Nonconformance: When a subplot of material is to have its price adjusted, the percentage point difference between the nonconforming

test value and the specification limit shall be determined for each sieve size determined to be nonconforming, and this value shall be multiplied by its appropriate multiplication factor as set forth in Table 307.2.4.2 to determine the degree of nonconformance on that sieve.

TABLE 307.2.4.2

NONCONFORMING SIEVE SIZE	MULTIPLICATION FACTOR
2 in. (50 mm)	1.0
1 ½ in. (37.5 mm)	1.0
¾ in. (19 mm)	1.0
No. 4 (4.75 mm)	1.0
No. 40 (425 µm)	1.5
No. 100 (150 µm)	2.0
No. 200 (75 µm)	2.5

The total measure of nonconformance of an individual subplot is the sum of all nonconformances on the various sieve sizes of that subplot.

When the total degree of nonconformance has been established and it is 12.0 or less, the material will be paid for at an adjusted contract price as specified in Table 307.9.1.

When the degree of nonconformance is greater than 12.0, the nonconforming subplot shall be resolved on an individual basis, requiring a special investigation by the Engineer to determine the appropriate course of action to be followed.

Pending resolution of the matter, additional lifts of base or pavement shall not be placed over the nonconforming material.

CONSTRUCTION METHODS

307.3-EQUIPMENT:

Any machine, combination of machines, or equipment which will handle the material without undue segregation and produce the completed base course meeting these Specifications for handling, spreading, moistening, mixing and compacting may be used when approved by the Engineer.

307.4-PLACING:

Prior to the placing of any base course material on the subgrade, the subgrade shall meet the applicable requirements of 207.9 or 228. The profile grade of the subgrade shall be such that the specified thickness of the base course may be obtained. No base shall be placed when the subgrade is frozen or when it is sufficiently wet that its surface can be marred by construction equipment.

The base course shall be placed and shaped on the prepared surface in layers to achieve the compacted thickness shown on the Plans. When more than one

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layer is required, each layer shall be shaped and compacted to the required density before the succeeding layer is placed. Each layer shall be kept at least 500 ft. (150 meters) ahead of the succeeding layer. Tailgating will not be permitted. If power graders are used for spreading, the material shall be placed in windrows and uniformly and thoroughly mixed prior to final spreading and compaction.

307.5-COMPACTING:

Each layer shall be compacted. The moisture content shall be maintained at a level sufficient to facilitate compaction. Required density and testing shall be in accordance with the provisions of the appropriate portions of 717. The surface of each layer shall be maintained during the compaction operations in such a manner that a uniform texture is produced and the aggregates firmly keyed. The surface of the top layer of the base course shall be carefully trued by blading if necessary.

307.6-TOLERANCE:

307.6.1-Surface Tolerance: The completed surface shall not vary more than $\frac{3}{8}$ in. (10 mm) above or below Plan grade, nor more than $\frac{3}{8}$ in. (10 mm) from a straightedge 10 ft. (3.048 m) long applied parallel to the centerline of the pavement. Deviations shall be corrected by scarifying, adding additional approved aggregate if necessary, reshaping, and recompacting.

307.6.2-Thickness Tolerance: The base course shall be checked for proper thickness after final compaction. The Contractor shall refill all test holes with approved base course material and adequately recompact the material.

Any deficiency in total thickness of the base course in excess of $\frac{1}{2}$ in. (13 mm) shall be corrected.

307.7-MAINTENANCE:

The surface of the completed base shall be protected against the loss of fine material by the addition of moisture when necessary, and it shall be maintained in a satisfactory and smooth condition until such time that it is surfaced or finally accepted.

307.8-METHOD OF MEASUREMENT:

The quantity of work done will be the number of cubic yards (meters) as established in the Proposal. Any additional work beyond the scope of the original Plans but authorized by the Engineer will be measured in cubic yards (meters) in place and paid for at the unit bid price for this item, subject to the provisions of 104.2 and 109.2.

Base course constructed outside the lines, dimensions, and cross sections shown on the Plans or designated will not be measured for payment.

307.9-BASIS OF PAYMENT:

The accepted quantities will be paid for at the respective contract unit price

as specified for the pay items listed below, which prices and payments shall be full compensation for furnishing all the materials and doing all the work prescribed in a workmanlike and acceptable manner, including water, labor, tools, equipment, supplies, and incidentals necessary to complete the work.

307.9.1-Price Adjustment: Aggregates not conforming with the gradation requirements as described in 307.2.4.1 will be paid for at the adjusted contract price based on the degree of nonconformance as specified in Table 307.9.1.

TABLE 307.9.1

ADJUSTMENT OF CONTRACT PRICE FOR
GRADATION NOT WITHIN SPECIFICATIONS

DEGREE OF NONCONFORMANCE	PERCENT OF CONTRACT PRICE TO BE REDUCED
1.0 to 3.0	2
3.1 to 5.0	4
5.1 to 8.0	7
8.1 to 12.0	11
Greater than 12.0	*

* The Division will make a special evaluation of the material and determine the appropriate action.

307.10-PAY ITEMS:

ITEM	DESCRIPTION	UNIT
307001-*	AGGREGATE BASE COURSE, CLASS “class”	CUBIC YARD (METER)

*Sequence number